SEQUENCE LISTING

<110> Merck & Co., Inc.
University of British Columbia

<120> APOPTOSIS MODULATORS THAT INTERACT WITH THE HUNTINGTON'S DISEASE GENE

<130> MC010PI

<140> 09/701,205
<141> 2000-11-27

<150> PCT/US99/11743
<151> 1999-05-27

<150> 09/085,199
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<170> FastSEQ for Windows Version 4.0

B1

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<213> Human

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Lys Arg Val Ile Gln Ile Pro Gln Leu Pro Glu Asn Pro Pro Asn Phe
35 40 45
Leu Arg Ala Ser Ala Leu Ser Glu His Ile Ser Pro Val Val Val Ile
50 55 60
Pro Ala Glu Ala Ser Ser Pro Asp Ser Glu Pro Val Leu Glu Lys Asp
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Asp Leu Met Asp Met Asp Ala Ser Gln Gln Asn Leu Phe Asp Asn Lys
85 90 95
Phe Asp Asp Phe Gly Ser Ser Ser Ser Ser Asp Pro Phe Asn Phe Asn
100 105 110
Ser Gln Asn Gly Val Asn Lys Asp Glu Lys Asp His Leu Ile Glu Arg
115 120 125
Leu Tyr Arg Glu Ile Ser Gly Leu Lys Ala Gln Leu Glu Asn Met Lys
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Thr Glu Ser Gln Arg Val Val Leu Gln Leu Lys Gly His Val Ser Glu
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Asp Asp Cys Glu Phe Leu Arg Ala Glu Leu Asp Glu Leu Arg Gln Arg
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Glu Asp Thr Glu Lys Ala Gln Arg Ser Leu Ser Glu Ile Glu Arg Lys
195 200 205
Ala Gln Ala Asn Glu Gln Arg Tyr Ser Lys Leu Lys Glu Lys Tyr Ser
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225 230 235 240
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245 250 255
Glu Lys Lys Glu Leu Glu Asp Ser Leu Glu Arg Ile Ser Asp Gln Gly
260 265 270
Gln Arg Lys Thr Gln Glu Gln Leu Glu Val Leu Glu Ser Leu Lys Gln
275 280 285
Glu Leu Gly Thr Ser Gln Arg Glu Leu Gln Val Leu Gln Gly Ser Leu
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Glu Thr Ser Ala Gln Ser Glu Ala Asn Trp Ala Ala Glu Phe Ala Glu
305 310 315 320
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325 330 335
Glu Glu Leu Ser Ala Leu Arg Lys Glu Leu Gln Asp Thr Gln Leu Lys
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        35                  40                  45
Glu Ala Gly Glu Ser Asp Val Asn Asn Phe Phe Gln Leu Thr Val Glu
    50                  55                  60
Met Phe Asp Tyr Leu Glu Cys Glu Leu Asn Leu Phe Gln Thr Val Phe
65                  70                  75                  80
Asn Ser Leu Asp Met Ser Arg Ser Val Ser Val Thr Ala Ala Gly Gln
                85                  90                  95
Cys Arg Leu Ala Pro Leu Ile Gln Val Ile Leu Asp Cys Ser His Leu
            100                 105                 110
Tyr Asp Tyr Thr Val Lys Leu Leu Phe Lys Leu His Ser Cys Leu Pro
        115                 120                 125
Ala Asp Thr Leu Gln Gly His Arg Asp Arg Phe Met Glu Gln Phe Thr
    130                 135                 140
Lys Leu Lys Asp Leu Phe Tyr Arg Ser Ser Asn Leu Gln Tyr Phe Lys
145                 150                 155                 160
Arg Leu Ile Gln Ile Pro Gln Leu Pro Glu Asn Pro Pro Asn Phe Leu
                165                 170                 175
Arg Ala Ser Ala Leu Ser Glu His Ile Ser Pro Val Val Val Ile Pro
            180                 185                 190
Ala Glu Ala Ser Ser Pro Asp Ser Glu Pro Val Leu Glu Lys Asp Asp
        195                 200                 205
Leu Met Asp Met Asp Ala Ser Gln Gln Asn Leu Phe Asp Asn Lys Phe
    210                 215                 220
Asp Asp Ile Phe Gly Ser Ser Phe Ser Ser Asp Pro Phe Asn Phe Asn
225                 230                 235                 240
Ser Gln Asn Gly Val Asn Lys Asp Glu Lys Asp His Leu Ile Glu Arg
                245                 250                 255
Leu Tyr Arg Glu Ile Ser Gly Leu Lys Ala Gln Leu Glu Asn Met Lys
            260                 265                 270
Thr Glu Ser Gln Arg Val Val Leu Gln Leu Lys Gly His Val Ser Glu
        275                 280                 285
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Arg Glu Asp Thr Glu Lys Ala Gln Arg Ser Leu Ser Glu Ile Glu Arg
                325                 330                 335
Lys Ala Gln Ala Asn Glu Gln Arg Tyr Ser Lys Leu Lys Glu Lys Tyr
            340                 345                 350
Ser Glu Leu Val Gln Asn His Ala Asp Leu Leu Arg Lys Asn Ala Glu
        355                 360                 365
Val Thr Lys Gln Val Ser Met Ala Arg Gln Ala Gln Val Asp Leu Glu
    370                 375                 380
Arg Glu Lys Lys Glu Leu Glu Asp Ser Leu Glu Arg Ile Ser Asp Gln
385                 390                 395                 400
Gly Gln Arg Lys Thr Gln Glu Gln Leu Glu Val Leu Glu Ser Leu Lys
                405                 410                 415
Gln Glu Leu Gly Thr Ser Gln Arg Glu Leu Gln Val Leu Gln Gly Ser
            420                 425                 430
Leu Glu Thr Ser Ala Gln Ser Glu Ala Asn Trp Ala Ala Glu Phe Ala
        435                 440                 445
Glu Leu Glu Lys Glu Arg Asp Ser Leu Val Ser Gly Ala Ala His Arg
    450                 455                 460
Glu Glu Glu Leu Ser Ala Leu Arg Lys Glu Leu Gln Asp Thr Gln Leu
465                 470                 475                 480
Lys Leu Ala Ser Thr Glu Glu Ser Met Cys Gln Leu Ala Lys Asp Gln
                485                 490                 495
Arg Lys Met Leu Leu Val Gly Ser Arg Lys Ala Ala Glu Gln Val Ile
            500                 505                 510
Gln Asp Ala Leu Asn Gln Leu Glu Glu Pro Pro Leu Ile Ser Cys Ala
        515                 520                 525
Gly Ser Ala Asp His Leu Leu Ser Thr Val Thr Ser Ile Ser Ser Cys
    530                 535                 540
Ile Glu Gln Leu Glu Lys Ser Trp Ser Gln Tyr Leu Ala Cys Pro Glu
545                 550                 555                 560
Asp Ile Ser Gly Leu Leu His Ser Ile Thr Leu Leu Ala His Leu Thr
                565                 570                 575
Ser Asp Ala Ile Ala His Gly Ala Thr Thr Cys Leu Arg Ala Pro Pro
            580                 585                 590
Glu Pro Ala Asp Ser Leu Thr Glu Ala Cys Lys Gln Tyr Gly Arg Glu
        595                 600                 605
Thr Leu Ala Tyr Leu Ala Ser Leu Glu Glu Glu Gly Ser Leu Glu Asn
    610                 615                 620
Ala Asp Ser Thr Ala Met Arg Asn Cys Leu Ser Lys Ile Lys Ala Ile
625                 630                 635                 640
Gly Glu Glu Leu Leu Pro Arg Gly Leu Asp Ile Lys Gln Glu Glu Leu
                645                 650                 655
Gly Asp Leu Val Asp Lys Glu Met Ala Ala Thr Ser Ala Ala Ile Glu
            660                 665                 670
Thr Cys Thr Ala Arg Ile Glu Glu Met Leu Ser Lys Ser Arg Ala Gly
        675                 680                 685
Asp Thr Gly Val Lys Leu Glu Val Asn Glu Arg Ile Leu Arg Cys Cys
    690                 695                 700
Thr Ser Leu Met Gln Ala Ile Gln Val Leu Ile Val Ala Ser Lys Asp
705                 710                 715                 720
Leu Gln Arg Glu Ile Val Glu Ser Gly Arg Gly Thr Ala Ser Pro Lys
                725                 730                 735
Glu Phe Tyr Ala Lys Asn Ser Arg Trp Thr Glu Gly Leu Ile Ser Ala
            740                 745                 750
Ser Lys Ala Val Gly Trp Gly Ala Thr Val Met Val Asp Ala Ala Asp
        755                 760                 765
Leu Val Val Gln Gly Arg Gly Lys Phe Glu Glu Leu Met Val Cys Ser
    770                 775                 780
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His Glu Ile Ala Ala Ser Thr Ala Gln Leu Val Ala Ala Ser Lys Val
785                 790                 795                 800
Lys Ala Asp Lys Asp Ser Pro Asn Leu Ala Gln Leu Gln Gln Ala Ser
                805                 810                 815
Arg Gly Val Asn Gln Ala Thr Ala Gly Val Val Ala Ser Thr Ile Ser
            820                 825                 830
Gly Lys Ser Gln Ile Glu Glu Thr Asp Asn Met Asp Phe Ser Ser Met
        835                 840                 845
Thr Leu Thr Gln Ile Lys Arg Gln Glu Met Asp Ser Gln Val Arg Val
    850                 855                 860
Leu Glu Leu Glu Asn Glu Leu Gln Lys Glu Arg Gln Lys Leu Gly Glu
865                 870                 875                 880
Leu Arg Lys Lys His Tyr Glu Leu Ala Gly Val Ala Glu Gly Trp Glu
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Lys Glu
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Ala Gly Ser Trp Glu Arg Cys Pro Pro Leu Pro Pro Ala Gly Arg Leu
        35                  40                  45
Gln Gly Thr Asp His Pro Trp Gly Trp Gly Arg Leu Ala Gly Gly Gly
    50                  55                  60
Glu Arg Gly Gly Leu Trp Glu Gly Leu Ser His Ser Gln Arg Leu Ile
65                  70                  75                  80
His Leu Ile Leu Leu Ser Leu Pro Leu Leu Val Phe Gln Thr Val Ser
                85                  90                  95
Ile Asn Lys Ala Ile Asn Thr Gln Glu Val Ala Val Lys Glu Lys His
            100                 105                 110
Ala Arg Thr Cys Ile Leu Gly Thr His His Glu Lys Gly Ala Gln Thr
        115                 120                 125
Phe Trp Ser Val Val Asn Arg Leu Pro Leu Ser Ser Asn Ala Val Leu
    130                 135                 140
Cys Trp Lys Phe Cys His Val Phe His Lys Leu Leu Arg Asp Gly His
145                 150                 155                 160
Pro Asn Val Leu Lys Asp Ser Leu Arg Tyr Arg Asn Glu Leu Ser Asp
                165                 170                 175
Met Ser Arg Met Trp Gly His Leu Ser Glu Gly Tyr Gly Gln Leu Cys
            180                 185                 190
Ser Ile Tyr Leu Lys Leu Leu Arg Thr Lys Met Glu Tyr His Thr Lys
        195                 200                 205
Asn Pro Arg Phe Pro Gly Asn Leu Gln Met Ser Asp Arg Gln Leu Asp
    210                 215                 220
Glu Ala Gly Glu Ser Asp Val Asn Asn Phe Phe Gln Leu Thr Val Glu
225                 230                 235                 240
Met Phe Asp Tyr Leu Glu Cys Glu Leu Asn Leu Phe Gln Thr Val Phe
                245                 250                 255
Asn Ser Leu Asp Met Ser Arg Ser Val Ser Val Thr Ala Ala Gly Gln
            260                 265                 270
Cys Arg Leu Ala Pro Leu Ile Gln Val Ile Leu Asp Cys Ser His Leu
        275                 280                 285
Tyr Asp Tyr Thr Val Lys Leu Leu Phe Lys Leu His Ser Cys Leu Pro
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Lys Leu Lys Asp Leu Phe Tyr Arg Ser Ser Asn Leu Gln Tyr Phe Lys
                325                 330                 335
Arg Leu Ile Gln Ile Pro Gln Leu Pro Glu Asn Pro Pro Asn Phe Leu
            340                 345                 350
Arg Ala Ser Ala Leu Ser Glu His Ile Ser Pro Val Val Val Ile Pro
        355                 360                 365
Ala Glu Ala Ser Ser Pro Asp Ser Glu Pro Val Leu Glu Lys Asp Asp
    370                 375                 380
Leu Met Asp Met Asp Ala Ser Gln Gln Asn Leu Phe Asp Asn Lys Phe
385                 390                 395                 400
Asp Asp Ile Phe Gly Ser Ser Phe Ser Ser Asp Pro Phe Asn Phe Asn
                405                 410                 415
Ser Gln Asn Gly Val Asn Lys Asp Glu Lys Asp His Leu Ile Glu Arg
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Leu Tyr Arg Glu Ile Ser Gly Leu Lys Ala Gln Leu Glu Asn Met Lys
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Thr Glu Ser Gln Arg Val Val Leu Gln Leu Lys Gly His Val Ser Glu
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Leu Glu Ala Asp Leu Ala Glu Gln Gln His Leu Arg Gln Gln Ala Ala
465                 470                 475                 480
Asp Asp Cys Glu Phe Leu Arg Ala Glu Leu Asp Glu Leu Arg Arg Gln
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Arg Glu Asp Thr Glu Lys Ala Gln Arg Ser Leu Ser Glu Ile Glu Arg
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Ser Glu Leu Val Gln Asn His Ala Asp Leu Leu Arg Lys Asn Ala Glu
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Arg Glu Lys Lys Glu Leu Glu Asp Ser Leu Glu Arg Ile Ser Asp Gln
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Gly Gln Arg Lys Thr Gln Glu Gln Leu Glu Val Leu Glu Ser Leu Lys
            580                 585                 590
Gln Glu Leu Ala Thr Ser Gln Arg Glu Leu Gln Val Leu Gln Gly Ser
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Glu Leu Glu Lys Glu Arg Asp Ser Leu Val Ser Gly Ala Ala His Arg
625                 630                 635                 640
Glu Glu Glu Leu Ser Ala Leu Arg Lys Glu Leu Gln Asp Thr Gln Leu
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Lys Leu Ala Ser Thr Glu Glu Ser Met Cys Gln Leu Ala Lys Asp Gln
            660                 665                 670
Arg Lys Met Leu Leu Val Gly Ser Arg Lys Ala Ala Glu Gln Val Ile
        675                 680                 685
Gln Asp Ala Leu Asn Gln Leu Glu Glu Pro Pro Leu Ile Ser Cys Ala
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Gly Ser Ala Asp His Leu Leu Ser Thr Val Thr Ser Ile Ser Ser Cys
705                 710                 715                 720
Ile Glu Gln Leu Glu Lys Ser Trp Ser Gln Tyr Leu Ala Cys Pro Glu
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Asp Ile Ser Gly Leu Leu His Ser Ile Thr Leu Leu Ala His Leu Thr
            740                 745                 750
Ser Asp Ala Ile Ala His Gly Ala Thr Thr Cys Leu Arg Ala Pro Pro
        755                 760                 765
Glu Pro Ala Asp Ser Leu Thr Glu Ala Cys Lys Gln Tyr Gly Arg Glu
    770                 775                 780
Thr Leu Ala Tyr Leu Ala Ser Leu Glu Glu Glu Gly Ser Leu Glu Asn
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785 790 795 800
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Gly Asp Leu Val Asp Lys Glu Met Ala Ala Thr Ser Ala Ala Ile Glu
835 840 845
Thr Ala Thr Ala Arg Ile Glu Glu Met Leu Ser Lys Ser Arg Ala Gly
850 855 860
Asp Thr Gly Val Lys Leu Glu Val Asn Glu Arg Ile Leu Gly Cys Cys
865 870 875 880
Thr Ser Leu Met Gln Ala Ile Gln Val Leu Ile Val Ala Ser Lys Asp
885 890 895
Leu Gln Arg Glu Ile Val Glu Ser Gly Arg Gly Thr Ala Ser Pro Lys
900 905 910
Glu Phe Tyr Ala Lys Asn Ser Arg Trp Thr Glu Gly Leu Ile Ser Ala
915 920 925
Ser Lys Ala Val Gly Trp Gly Ala Thr Val Met Val Asp Ala Ala Asp
930 935 940
Leu Val Val Gln Gly Arg Gly Lys Phe Glu Glu Leu Met Val Cys Ser
945 950 955 960
His Glu Ile Ala Ala Ser Thr Ala Gln Leu Val Ala Ala Ser Lys Val
965 970 975
Lys Ala Asp Lys Asp Ser Pro Asn Leu Ala Gln Leu Gln Gln Ala Ser
980 985 990
Arg Gly Val Asn Gln Ala Thr Ala Gly Val Val Ala Ser Thr Ile Ser
995 1000 1005
Gly Lys Ser Gln Ile Glu Glu Thr Asp Asn Met Asp Phe Ser Ser Met
1010 1015 1020
Thr Leu Thr Gln Ile Lys Arg Gln Glu Met Asp Ser Gln Val Arg Val
1025 1030 1035 1040
Leu Glu Leu Glu Asn Glu Leu Gln Lys Glu Arg Gln Lys Leu Gly Glu
1045 1050 1055
Leu Arg Lys Lys His Tyr Glu Leu Ala Gly Val Ala Glu Gly Trp Glu
1060 1065 1070
Glu Gly Thr Glu Ala Ser Pro Pro Thr Leu Gln Glu Val Val Thr Glu
1075 1080 1085
Lys Glu
1090

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<211> 3251
<212> DNA
<213> Human

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gacccgcttc tcccacctgg ctgcggatac catcatcaat ggcggtgcca cctcgcacct 960

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<210> 7
<211> 676
<212> PRT
<213> Human

<400> 7

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            20                  25                  30
Glu Arg Glu Arg Ser Gln Gly Leu Arg Glu Glu Ala Glu Arg Lys Ala
        35                  40                  45
Ser Ala Thr Glu Ala Arg Tyr Asn Lys Leu Lys Glu Lys His Ser Glu
    50                  55                  60
Leu Val His Val His Ala Glu Leu Leu Arg Lys Asn Ala Asp Thr Ala
65                  70                  75                  80
Lys Gln Leu Thr Val Thr Gln Gln Ser Gln Glu Glu Val Ala Arg Val
                85                  90                  95
Lys Glu Gln Leu Ala Phe Gln Val Glu Gln Val Lys Arg Glu Ser Glu
            100                 105                 110
Leu Lys Leu Glu Glu Lys Ser Asp Gln Gln Glu Lys Leu Lys Arg Glu
        115                 120                 125
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Leu Glu Ala Lys Ala Gly Glu Leu Ala Arg Ala Gln Glu Ala Leu Ser
    130                 135                 140
His Thr Glu Gln Ser Lys Ser Glu Leu Ser Ser Arg Leu Asp Thr Leu
145                 150                 155                 160
Ser Ala Glu Lys Asp Ala Leu Ser Gly Ala Val Arg Gln Arg Glu Ala
                165                 170                 175
Asp Leu Leu Ala Ala Gln Ser Leu Val Arg Glu Thr Glu Ala Ala Leu
            180                 185                 190
Ser Arg Glu Gln Gln Arg Ser Ser Gln Glu Gln Gly Glu Leu Gln Gly
        195                 200                 205
Arg Leu Ala Glu Arg Glu Ser Gln Glu Gln Gly Leu Arg Gln Arg Leu
    210                 215                 220
Leu Asp Glu Gln Phe Ala Val Leu Arg Gly Ala Ala Ala Glu Ala Ala
225                 230                 235                 240
Gly Ile Leu Gln Asp Ala Val Ser Lys Leu Asp Asp Pro Leu His Leu
                245                 250                 255
Arg Cys Thr Ser Ser Pro Asp Tyr Leu Val Ser Arg Ala Gln Glu Ala
            260                 265                 270
Leu Asp Ala Val Ser Thr Leu Glu Glu Gly His Ala Gln Tyr Leu Thr
        275                 280                 285
Ser Leu Ala Asp Ala Ser Ala Leu Val Ala Ala Leu Thr Arg Phe Ser
    290                 295                 300
His Leu Ala Ala Asp Thr Ile Ile Asn Gly Gly Ala Thr Ser His Leu
305                 310                 315                 320
Ala Pro Thr Asp Pro Ala Asp Arg Leu Ile Asp Thr Cys Arg Glu Cys
                325                 330                 335
Gly Ala Arg Ala Leu Glu Leu Met Gly Gln Leu Gln Asp Gln Gln Ala
            340                 345                 350
Leu Arg His Met Gln Ala Ser Leu Val Arg Thr Pro Leu Gln Gly Ile
        355                 360                 365
Leu Gln Leu Gly Gln Glu Leu Lys Pro Lys Ser Leu Asp Val Arg Gln
    370                 375                 380
Glu Glu Leu Gly Ala Val Val Asp Lys Glu Met Ala Ala Thr Ser Ala
385                 390                 395                 400
Ala Ile Glu Asp Ala Val Arg Arg Ile Glu Asp Met Met Asn Gln Ala
                405                 410                 415
Arg His Ala Ser Ser Gly Val Lys Leu Glu Val Asn Glu Arg Ile Leu
            420                 425                 430
Asn Ser Cys Thr Asp Leu Met Lys Ala Ile Arg Leu Leu Val Thr Thr
        435                 440                 445
Ser Thr Ser Leu Gln Lys Glu Ile Val Glu Ser Gly Arg Gly Ala Ala
    450                 455                 460
Thr Gln Gln Glu Phe Tyr Ala Lys Asn Ser Arg Trp Thr Glu Gly Leu
465                 470                 475                 480
Ile Ser Ala Ser Lys Ala Val Gly Trp Gly Ala Thr Gln Leu Val Glu
                485                 490                 495
Ala Ala Asp Lys Val Val Leu His Thr Gly Lys Tyr Glu Glu Leu Ile
            500                 505                 510
Val Cys Ser His Glu Ile Ala Ala Ser Thr Ala Gln Leu Val Ala Ala
        515                 520                 525
Ser Lys Val Lys Ala Asn Lys His Ser Pro His Leu Ser Arg Leu Gln
    530                 535                 540
Glu Cys Ser Arg Thr Val Asn Glu Arg Ala Ala Asn Val Val Ala Ser
545                 550                 555                 560
Thr Lys Ser Gly Gln Glu Gln Ile Glu Asp Arg Asp Thr Met Asp Phe
                565                 570                 575
Ser Gly Leu Ser Leu Ile Lys Leu Lys Lys Gln Glu Met Glu Thr Gln
            580                 585                 590
Val Arg Val Leu Glu Leu Glu Lys Thr Leu Glu Ala Glu Arg Met Arg
        595                 600                 605
Leu Gly Glu Leu Arg Lys Gln His Tyr Val Leu Ala Gly Ala Ser Gly
    610                 615                 620
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```
Ser Pro Gly Glu Glu Val Ala Ile Arg Pro Ser Thr Ala Pro Arg Ser
625                 630                 635                 640
Val Thr Thr Lys Lys Pro Pro Leu Ala Gln Lys Pro Ser Val Ala Pro
                645                 650                 655
Arg Gln Asp His Gln Leu Asp Lys Lys Asp Gly Ile Tyr Pro Ala Gln
            660                 665                 670
Leu Val Asn Tyr
        675
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<210> 8
<211> 2301
<212> DNA
<213> Mouse

<400> 8

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agacagtgag cctgtcctgg agaaggatga cctcatggac atggacgcct cccagcagac     180
tttgtttgac aacaagtttg atgacgtctt tggcagctca ttgagcagcg acccttttcaa     240
tttcaacaat caaaatggcg tgaacaagga cgagaaggac cacttgattg aacgcctgta     300
cagagagatc agtggactga cagggcagct ggacaacatg aagattgaga gccagcgggc     360
catgctgcag ctgaagggtc gagtgagtga gctggaggca gagctagcag agcagcagca     420
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agcccaggtg gatttggaaa gagagaaaaa agagctagca gattcctttg cacgtgtaag     720
tgaccaggcc cagcggaaga ctcaagagca acaggatgtt ctagagaacc tgaagcatga     780
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gacagaagca tcaccgtcta ctgtccaaga agcaataccg gacaaagagt agagccaagc    2280
cgacacccca cacatcagaa a                                              2301
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<210> 9
<211> 756
<212> PRT
<213> Mouse

<400> 9

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            20                  25                  30
Ile Pro Ala Glu Val Ser Ser Pro Asp Ser Glu Pro Val Leu Glu Lys
        35                  40                  45
Asp Asp Leu Met Asp Met Asp Ala Ser Gln Gln Thr Leu Phe Asp Asn
    50                  55                  60
Lys Phe Asp Asp Val Phe Gly Ser Ser Leu Ser Ser Asp Pro Phe Asn
65                  70                  75                  80
Phe Asn Asn Gln Asn Gly Val Asn Lys Asp Glu Lys Asp His Leu Ile
                85                  90                  95
Glu Arg Leu Tyr Arg Glu Ile Ser Gly Leu Thr Gly Gln Leu Asp Asn
            100                 105                 110
Met Lys Ile Glu Ser Gln Arg Ala Met Leu Gln Leu Lys Gly Arg Val
        115                 120                 125
Ser Glu Leu Glu Ala Glu Leu Ala Glu Gln Gln His Leu Gly Arg Gln
    130                 135                 140
Ala Met Asp Asp Cys Glu Phe Leu Arg Thr Glu Leu Asp Glu Leu Lys
145                 150                 155                 160
Arg Gln Arg Glu Asp Thr Glu Lys Ala Gln Arg Ser Leu Thr Glu Ile
                165                 170                 175
Glu Arg Lys Ala Gln Ala Asn Glu Gln Arg Tyr Ser Lys Leu Lys Glu
            180                 185                 190
Lys Tyr Ser Glu Leu Val Gln Asn His Ala Asp Leu Leu Arg Lys Asn
        195                 200                 205
Ala Glu Val Thr Lys Gln Val Ser Val Ala Arg Gln Ala Gln Val Asp
    210                 215                 220
Leu Glu Arg Glu Lys Lys Glu Leu Ala Asp Ser Phe Ala Arg Val Ser
225                 230                 235                 240
Asp Gln Ala Gln Arg Lys Thr Gln Glu Gln Gln Asp Val Leu Glu Asn
                245                 250                 255
Leu Lys His Glu Leu Ala Thr Ser Arg Gln Glu Leu Gln Val Leu His
            260                 265                 270
Ser Asn Leu Glu Thr Ser Ala Gln Ser Glu Ala Lys Trp Leu Thr Gln
        275                 280                 285
Ile Ala Glu Leu Glu Lys Glu Gln Gly Ser Leu Ala Thr Val Ala Ala
    290                 295                 300
Gln Arg Glu Glu Glu Leu Ser Ala Leu Arg Asp Gln Leu Glu Ser Thr
305                 310                 315                 320
Gln Ile Lys Leu Ala Gly Ala Gln Glu Ser Met Cys Gln Gln Val Lys
                325                 330                 335
Asp Gln Arg Lys Thr Leu Leu Ala Gly Ile Arg Lys Ala Ala Glu Arg
            340                 345                 350
Glu Ile Gln Glu Ala Leu Ser Gln Leu Glu Glu Pro Thr Leu Ile Ser
        355                 360                 365
Cys Ala Gly Ser Thr Asp His Leu Leu Ser Lys Val Ser Ser Val Ser
    370                 375                 380
Ser Cys Leu Glu Gln Leu Glu Lys Asn Gly Ser Gln Tyr Leu Ala Cys
385                 390                 395                 400
Pro Glu Asp Ile Ser Glu Leu Leu His Ser Ile Thr Leu Leu Ala His
                405                 410                 415
Leu Thr Gly Asp Thr Val Ile Gln Gly Ser Ala Thr Ser Leu Arg Ala
            420                 425                 430
Pro Pro Glu Pro Ala Asp Ser Leu Thr Glu Ala Cys Arg Gln Tyr Gly
        435                 440                 445
Arg Glu Thr Leu Ala Tyr Leu Ser Ser Leu Glu Glu Glu Gly Thr Val
    450                 455                 460
Glu Asn Ala Asp Val Thr Ala Leu Arg Asn Cys Leu Ser Arg Val Lys
465                 470                 475                 480
Thr Leu Gly Glu Glu Leu Leu Pro Arg Gly Leu Asp Ile Lys Gln Glu
                485                 490                 495
Glu Leu Gly Asp Leu Val Asp Lys Glu Met Ala Ala Thr Ser Ala Ala
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                500                 505                 510
Ile Glu Ala Ala Thr Thr Arg Ile Glu Glu Ile Leu Ser Lys Ser Arg
        515                 520                 525
Ala Gly Asp Thr Gly Val Lys Leu Glu Val Asn Glu Arg Ile Leu Gly
    530                 535                 540
Ser Cys Thr Ser Leu Met Gln Ala Ile Lys Val Leu Val Val Ala Ser
545                 550                 555                 560
Lys Asp Leu Gln Lys Glu Ile Val Glu Ser Gly Arg Gly Ser Ala Ser
                565                 570                 575
Pro Lys Glu Phe Tyr Ala Lys Asn Ser Arg Trp Thr Glu Gly Leu Ile
            580                 585                 590
Ser Ala Ser Lys Ala Val Gly Trp Gly Ala Thr Ile Met Val Asp Ala
        595                 600                 605
Ala Asp Leu Val Val Gln Gly Lys Gly Lys Phe Glu Glu Leu Met Val
    610                 615                 620
Cys Ser Arg Glu Ile Ala Ala Ser Thr Ala Gln Leu Val Ala Ala Ser
625                 630                 635                 640
Lys Val Lys Ala Asn Lys Gly Ser Leu Asn Leu Thr Gln Leu Gln Gln
                645                 650                 655
Ala Ser Arg Gly Val Asn Gln Ala Thr Ala Ala Val Val Ala Ser Thr
            660                 665                 670
Ile Ser Gly Lys Ser Gln Ile Glu Glu Thr Asp Ser Met Asp Phe Ser
        675                 680                 685
Ser Met Thr Leu Thr Gln Ile Lys Arg Gln Glu Met Asp Ser Gln Val
    690                 695                 700
Arg Val Leu Glu Leu Glu Asn Asp Leu Gln Lys Glu Arg Gln Lys Leu
705                 710                 715                 720
Gly Glu Leu Arg Lys Lys His Tyr Glu Leu Glu Gly Val Ala Glu Gly
                725                 730                 735
Trp Glu Glu Gly Thr Glu Ala Ser Pro Ser Thr Val Gln Glu Ala Ile
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Pro Asp Lys Glu
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<210> 10
<211> 3979
<212> DNA
<213> Mouse

<400> 10

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gaagcatgcc cggcgtatca tcctgggcac gcatcatgag aagggagcct tcaccttctg     300
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cgtccttcac aaggtcctcc gggacggaca ccccaacgtc ctgcatgact atcagcggta     420
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35 40 45
Lys His Ala Arg Arg Ile Ile Leu Gly Thr His His Glu Lys Gly Ala
50 55 60
Phe Thr Phe Trp Ser Tyr Ala Ile Gly Leu Pro Leu Ser Ser Ser Ser
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Arg Glu Ile Gly Asp Leu Trp Gly His Leu Arg Asp Gln Tyr Gly His
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Leu Val Asn Ile Tyr Thr Lys Leu Leu Leu Thr Lys Ile Ser Phe His
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Leu Lys His Pro Gln Phe Pro Ala Gly Leu Glu Val Thr Asp Glu Val
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Val Glu Met Phe Asp Tyr Met Asp Cys Glu Leu Lys Leu Ser Glu Ser
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Val Phe Arg Gln Leu Asn Thr Ala Ile Ala Val Ser Gln Met Ser Ser
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Gly Gln Cys Arg Leu Ala Pro Leu Ile Gln Val Ile Gln Asp Cys Ser
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His Leu Tyr His Tyr Thr Val Lys Leu Met Phe Lys Leu His Ser Cys
225                 230                 235                 240
Leu Pro Ala Asp Thr Leu Gln Gly His Arg Asp Arg Phe His Glu Gln
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Phe His Ser Leu Lys Asn Phe Phe Arg Arg Ala Ser Asp Met Leu Tyr
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Phe Lys Arg Leu Ile Gln Ile Pro Arg Leu Pro Glu Gly Pro Pro Asn
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Phe Leu Arg Ala Ser Ala Leu Ala Glu His Ile Lys Pro Val Val Val
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Lys Leu Lys Glu Lys His Ser Glu Leu Ile Asn Thr His Ala Glu Leu
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Ala Arg Ala Gln Glu Ala Leu Ser Arg Thr Glu Gln Ser Gly Ser Glu
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Gly Val Val Arg Gln Arg Glu Ala Glu Leu Leu Ala Ala Gln Ser Leu
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625 630 635 640
Lys Leu Asp Asp Pro Leu His Leu Arg Cys Thr Ser Ser Pro Asp Tyr
645 650 655
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Gln Gly His Thr Gln Tyr Leu Ala Ser Ser Glu Asp Ala Ser Ala Leu
675 680 685
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690 695 700
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740 745 750
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755 760 765
Pro Lys Ser Leu Asp Val Arg Gln Glu Glu Leu Gly Ala Met Val Asp
770 775 780
Lys Glu Met Ala Ala Thr Ser Ala Ala Ile Glu Asp Ala Val Arg Arg
785 790 795 800
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820 825 830
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835 840 845
Val Glu Ser Gly Arg Gly Ala Ala Thr Gln Gln Glu Phe Tyr Ala Lys
850 855 860
Asn Ser Arg Trp Thr Glu Gly Leu Ile Ser Ala Ser Lys Ala Val Gly
865 870 875 880
Trp Gly Ala Thr Gln Leu Val Glu Ser Ala Asp Lys Val Val Leu His
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930 935 940
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Lys Lys Gln Glu Met Glu Thr Gln Val Arg Val Leu Glu Leu Glu Lys
980 985 990
Thr Leu Glu Ala Glu Arg Val Arg Leu Gly Glu Leu Arg Lys Gln His
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